(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

B'

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

a pre-chirp compensator arranged on said optical path for providing said pulse laser beam with a certain amount of pre-chirp compensation,

A1 cont.

a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, and

a correcting mechanism for correcting an optical path length of said optical path so as to be constant no matter which of said objective lenses is selectively placed on said optical path,

wherein said correcting mechanism comprises at least one optical correcting element adapted to be selectively placed on said optical path in accordance with which of said objective lenses is selectively placed on said optical path, and

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser

B1 cont'd

beam passes through said optical path whose optical path length is kept constant.

A1 cond.

2. (Amended) The microscope according to claim 1, further comprising an interlocking mechanism for causing operation of said correcting mechanism to be interlocked with switchover of said objective lenses.

3. (Amended) The microscope according to claim 1, wherein said at least one optical correcting element is adapted to be arranged on said optical path at a position where said pulse laser beam forms a parallel luminous flux and there is no change in an angle of said luminous flux.

A2

5. (Amended) The microscope according to claim 1, wherein said correcting mechanism includes a rotor supporting said at least one optical correcting element.

6. (Amended) The microscope according to claim 1, wherein said correcting mechanism includes a slider supporting said at least one optical correcting element.

7. (Amended) The microscope according to claim 1, wherein said at least one optical correcting element and said objective lenses are supported by a same supporting member and are moved together.

10. (Amended) The microscope according to claim 1, wherein said optical system further comprises a scanning mechanism for scanning said sample to be observed with said pulse laser beam.

A3

11. (Amended) The microscope according to claim 10, wherein said scanning mechanism comprises a scanning optical unit for moving said pulse laser beam, and wherein said at least one optical correcting element is adapted to be arranged on said optical path at a position between said scanning optical unit and said pre-chirp compensator.

12. (Amended) The microscope according to claim 1, wherein said optical system also forms an optical path for guiding said fluorescent light to said detector.

13. (Amended) The microscope according to claim 1, further comprising an additional optical system and detector for detecting light of the pulse laser beam that is transmitted through the sample.

sub B2

14. (Amended) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

B2

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

A3 cont.

a pre-chirp compensator arranged on said optical path for providing said pulse laser beam with a certain amount of pre-chirp compensation,

an optical member adapted to be selectively placed on said optical path, and

a correcting mechanism for correcting an optical path length of said optical path so as to be constant,

wherein said correcting mechanism comprises at least one optical correcting element adapted to be selectively placed on said optical path in accordance with selective placement of said optical member, and

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser beam passes through said optical path whose optical path length is kept constant.

15. (Amended) The microscope according to claim 14, wherein said optical member comprises a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample.

A3 cond.

16. (Amended) The microscope according to claim 14, wherein said optical member comprises a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, and a flat optical element adapted to be selectively inserted between said pre-chirp compensator and said objective lenses.

17. (Amended) The microscope according to claim 16, wherein said optical element comprises a Nomarski prism.

A4

sub B3

18. (New) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

a pre-chirp compensator arranged on said optical path for providing said pulse laser beam with a certain amount of pre-chirp compensation,

a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, and

a correcting mechanism for causing an optical path length of said optical path to be constant no matter which of said objective lenses is selectively placed on said optical path,

B3

wherein said correcting mechanism comprises an optical correcting element whose optical path length is adjustable by applying different voltages in accordance with which of said objective lenses is selectively placed on said optical path, and

A4 Cont.

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser beam passes through said optical path whose optical path length is kept constant.

19. (New) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

a pre-chirp compensator arranged on said optical path for providing said pulse laser beam with a certain amount of pre-chirp compensation,

a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, and

B3

a correcting mechanism for causing an optical path length of said optical path to be constant no matter which of said objective lenses is selectively placed on said optical path,

wherein said correcting mechanism comprises an optical correcting element whose optical path length is adjustable by applying different pressures in accordance with which of said objective lenses is selectively placed on said optical path, and

A4 cont.

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser beam passes through said optical path whose optical path length is kept constant.

20 (New) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

B3

a pre-chirp compensator arranged on said optical path for providing said pulse laser beam with a certain amount of pre-chirp compensation,

a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, and

A4 cond.

a correcting mechanism for causing an optical path length of said optical path to be constant no matter which of said objective lenses is selectively placed on said optical path, and

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser beam passes through said optical path whose optical path length is kept constant.

21. (New) The microscope according to claim 1, wherein said at least one optical correcting element comprises a plurality of optical correcting elements, and said plurality of optical correcting elements are adapted to be selectively placed on said optical path in accordance with which of said objective lenses is selectively placed on said optical path in a one-to-one corresponding relationship.